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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/720,724

11/24/2003

Mitsuro Atobe

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27572 7590 03/12/2007  
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EXAMINER

DHINGRA, RAKESH KUMAR

ART UNIT

PAPER NUMBER

1763

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/12/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/720,724	ATOBE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Rakesh K. Dhingra	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 5 and 13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5 and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments with respect to claims 5 and 13 have been considered but are moot in view of the new ground(s) of rejection as explained hereunder.

Applicant has amended independent claim 5, 13 by adding limitation "arranged interdigitally in a mask pattern portion".

New references have been found (US Patent No. 4,964,145 – Maldonado and US Patent No. 5,923,521 - Burkhart) which when combined with Baude et al and Hirayanagi et al read on limitations of amended claim 5 and 13. Accordingly claims 5 and 13 have been rejected under 35 USC 103 (a) as explained below.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 5, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baude et al (US PG PUB No. 2003/0150384) in view of Hirayanagi et al (US Patent No. 6,171,736) and Maldonado (US Patent No. 4,964,145).**

Regarding Claim 5: Baude et al teach an apparatus (Figures 5-7) that includes a vacuum chamber 50 with a deposition unit (evaporation source) 54, a mask 10 J/K and deposition substrate 52 and controls deposition in a predetermined manner.

Baude et al further teach that an electrostatic charge may be applied to the mask 10K by electrostatic techniques (electrostatic chucking mechanism) to address the sag problem when working with large size masks (paragraphs 0033-0040).

Baude et al do not teach mask including silicon and also do not expressly teach mask having electrodes for generating electrostatic attraction, and the connected wiring (unit for supplying charge to the mask pattern).

Hirayanagi et al teach an apparatus (Figures 1, 5) that includes silicon mask assembly having mask patterns 11a, 11b and provided with electrodes 83a-83h that are secured to the mask retention member 82 by using electrostatic charge (column 4, line 60 to column 5, line 36). Hirayanagi et al does not expressly teach associated wiring (including unit) for providing electric power to electrodes on the mask but the same would be obviously required for generating electrostatic charge.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide electrodes with connected wiring for generating electrostatic attraction as taught by Hirayanagi et al in the apparatus of Baude et al et al when using non flexible masks (like masks made from silicon) for holding deposition substrate without sag.

Baude et al in view of Hirayanagi et al teach electrodes 83a-83h but do not teach the electrodes are arranged interdigitally in the mask pattern portion.

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Maldonado teaches a mask substrate 10 (Figures 1-3) provided with interdigital electrode 16 and external conductors (not shown) for actuating the selected electrode. Maldonado also teaches that interdigital electrode can also be located in the exposure area (pattern area) [column 3, line 15 to column 5, line 10]. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use interdigital electrodes in the mask as taught by Maldonado in the apparatus of Baude et al in view of Hirayanagi et al to enable correct magnification error in the masks and also obtain more uniform distribution of electrostatic force between mask and the substrate.

Regarding Claim 13: Baude et al in view of Hirayanagi et al and Maldonado teach all limitations of the claim (as explained above) including that apparatus of the invention can be used for manufacture of display panels by depositing organic compound (paragraphs 0003, 0006, 0027, 0029).

**Claims 5, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baude et al (US PGPub No. 2003/0150384) in view of Hirayanagi et al (US Patent No. 6,171,736) and Burkhart (US Patent No. 5,923,521).**

Regarding Claim 5: Baude et al teach an apparatus (Figures 5-7) that includes a vacuum chamber 50 with a deposition unit (evaporation source) 54, a mask 10 J/K and deposition substrate 52 and controls deposition in a predetermined manner.

Baude et al further teach that an electrostatic charge may be applied to the mask 10K by electrostatic techniques (electrostatic chucking mechanism) to address the sag problem when working with large size masks (paragraphs 0033-0040).

Baude et al do not teach mask including silicon and also do not expressly teach mask having electrodes for generating electrostatic attraction, and the connected wiring (unit for supplying charge to the mask pattern).

Hirayanagi et al teach an apparatus (Figures 1, 5) that includes silicon mask assembly having mask patterns 11a, 11b and provided with electrodes 83a-83h that are secured to the mask retention member 82 by using electrostatic charge (column 4, line 60 to column 5, line 36). Hirayanagi et al does not expressly teach associated wiring (including unit) for providing electric power to electrodes on the mask but the same would be obviously required for generating electrostatic charge.

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide electrodes with connected wiring for generating electrostatic attraction as taught by Hirayanagi et al in the apparatus of Baude et al et al when using non flexible masks (like masks made from silicon) for holding deposition substrate without sag.

Baude et al in view of Hirayanagi et al teach electrodes 83a-83h but do not teach the electrodes are arranged interdigitally in the mask pattern portion. However it is known in the art to use electrodes arranged interdigitally to obtain more uniform distribution of electrostatic force as per example given below.

Burkhart teaches an apparatus (Figure 1) that includes an electrostatic chuck body 110 and a wafer spacing mask 102 for supporting a semiconductor wafer 108. Burkhart further teaches that chuck can have interdigital electrodes so that electrostatic force is more uniformly distributed across the underside of wafer (column 3, line to column 4, line 20).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to replace electrode in the mask of Baude et al in view of Hirayanagi et al, with electrodes arranged interdigitally as taught by Burkhart so as to obtain more uniform distribution of electrostatic force for holding the substrate with the mask.

Regarding Claim 13: Baude et al in view of Hirayanagi et al and Burkhart teach all limitations of the claim (as explained above) including that apparatus of the invention can be used for manufacture of display panels by depositing organic compound (paragraphs 0003, 0006, 0027, 0029).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rakesh K. Dhingra whose telephone number is (571)-272-5959. The examiner can normally be reached on 8:30 -6:00 (Monday - Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571)-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Rakesh Dhingra



Parviz Hassanzadeh  
Supervisory Patent Examiner  
Art Unit 1763